

**BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA**

**DOCKET NO. 2019-224-E
DOCKET NO. 2019-225-E**

In the Matter of:

South Carolina Energy Freedom Act (House
Bill 3659) Proceeding Related to S.C. Code
Ann. Section 58-37-40 and Integrated
Resource Plans for Duke Energy Carolinas,
LLC and Duke Energy Progress, LLC

**REBUTTAL TESTIMONY OF
LEON BRUNSON
ON BEHALF OF DUKE ENERGY
CAROLINAS, LLC AND DUKE
ENERGY PROGRESS, LLC**

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Leon Brunson and my business address is 550 South Tryon, Charlotte, North
3 Carolina.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed by Duke Energy Business Services, LLC as a Lead Load Forecast Analyst
6 for Duke Energy Carolinas, LLC's ("DEC") and Duke Energy Progress, LLC's ("DEP,"
7 together with DEC, the "Companies") service areas.

8 **Q. DID YOU PREVIOUSLY FILE DIRECT TESTIMONY IN THIS PROCEEDING?**

9 A. Yes.

10 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY IN THIS**
11 **PROCEEDING?**

12 A. My rebuttal testimony responds to statements made in direct testimony related to the
13 Companies' load forecast by Natural Resources Defense Council, Southern Alliance for
14 Clean Energy, Sierra Club, South Carolina Coastal Conservation League, and Upstate
15 Forever (collectively, the "Environmental Parties") Witness James Wilson; Carolinas
16 Clean Energy Business Association¹ ("CCEBA") Witness Kevin Lucas; and South
17 Carolina Office of Regulatory Staff ("ORS") Witness Anthony Sandonato.

18 **Q. ENVIRONMENTAL PARTIES WITNESS WILSON STATES: "ECONOMIC**
19 **FORECASTS HAVE GENERALLY BEEN LOWERED SINCE JANUARY 2020,**
20 **SO PEAK LOADS IN THE COMING YEARS ARE LIKELY TO BE SOMEWHAT**

¹ On June 26, 2019, the Commission issued Order Nos. 2019-467 and 2019-468 granting the South Carolina Solar Business Alliance, Inc.'s ("SCSBA") petition for intervention in these proceedings. On March 10, 2021, the Commission issued Order No. 2021-167 granting SCSBA's Motion to substitute CCEBA as the party of record and participant in these Dockets.

1 **LOWER THAN REFLECTED IN THE COMPANIES' FORECASTS.”² HOW DO**
2 **YOU RESPOND?**

3 A. Contrary to Mr. Wilson’s assertion that peak loads “are likely to be somewhat lower,” the
4 actual data from 2020 shows that DEP summer peak demand came in as expected, while
5 DEC summer peak demand came in 2.9% above expectations. Peak demand is the most
6 significant driver of the load forecast and the most relevant consideration in system
7 planning as electric utilities are required to plan the system to meet peak load. This data
8 showing that DEP peak demand came in as expected and DEC peak demand came in nearly
9 3% above expectations demonstrates that households and businesses will continue to
10 demand electricity despite the unusual circumstances and shifting economics associated
11 with the pandemic.

12 Further, updated data shows that electricity usage (i.e., kWh demand rather than
13 kW peak) for 2020 “caught up” or rebounded from that which was reflected in the data in
14 my direct testimony, which was based on the first nine months of 2020. For the entirety of
15 2020, DEC and DEP retail sales were only 1.4% and 0.2% lower than expected
16 respectively, as compared to the 3.0% and 2.5% reductions reported for the first nine
17 months in my direct testimony.

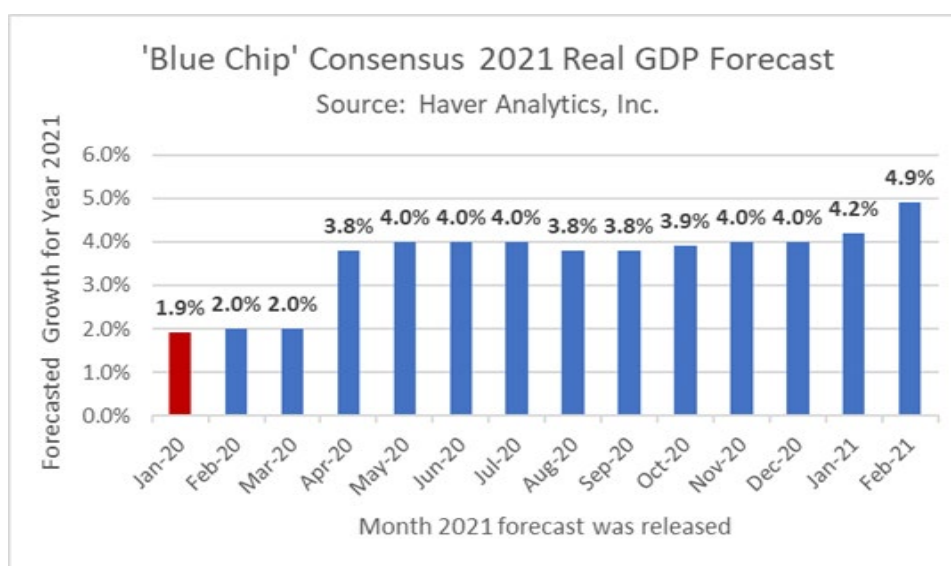
18 Also responsive to Mr. Wilson’s claim of lowered economic forecasts is 2021
19 forecasted growth rate data from the Blue-Chip Economic Indicators Survey, a consensus
20 forecast of more than 50 nationally recognized economists.³ The Blue-Chip Consensus

² Environmental Parties Wilson Direct, Exhibit B at 9.

³ Blue Chip Economic and Financial Indicators, Wolters Kluwer Legal & Regulatory, *available at* <https://lrus.wolterskluwer.com/store/blue-chip-publications>.

report is a source utilized by load forecasting as a check against Moody's Analytics data to help ensure load forecast growth assumptions are reasonable. The Blue-Chip consensus gross domestic product forecast for year 2021 was 1.9% as of January 2020 (in red in Figure 1 below), which is in line with the Moody's forecasted growth rate relied upon in the 2020 load forecast in the IRPs. As shown in Figure 1 below, this 1.9% forecast for year 2021 was revised upward every month to date, and currently stands at 4.9%.

Brunson Figure 1: 2021 Real GDP Forecast by Month



Q. CCEBA WITNESS LUCAS STATES THAT DEC'S ANNUAL SUMMER PEAK DEMAND FORECAST INCORPORATES FORECAST ERRORS, BASED ON THE ILLUSTRATION OF DEC'S PREVIOUS LOAD FORECASTS IN FIGURE 30 OF HIS TESTIMONY.⁴ HOW DO YOU RESPOND?

A. Mr. Lucas's load forecast error assessment is based solely on his alleged forecast error argument, which utilizes previous price projections from the Energy Information Administration's Annual Energy Outlook. Mr. Lucas initially used this approach in his

⁴ CCEBA Lucas Direct, at 92.

1 testimony to critique the gas fundamentals forecast, and simply applied the same approach
2 to critique the peak load forecast. This approach is problematic, however, unless you
3 believe there is perfect symmetry in the fundamentals forecast and the peak load forecast's
4 assumptions, input drivers, methodologies. A notable omission from his assessment is any
5 mention of economic conditions during this period, which is a primary assumption input
6 for the load forecast. For example, the Great Recession significantly impacted peak
7 demand growth during the official recession period December 2007 to June 2009 and had
8 lasting negative impacts through 2013. It is well-documented that economic forecasters
9 worldwide continuously over-forecasted growth during this period due to the unique nature
10 of this recession, resulting in large economic and demographic forecast errors.⁵ For these
11 reasons, the choice of using this period as a reference period to critique load forecast
12 accuracy incorporates a biased view of DEC's historical summer peak demand growth.
13 Because Mr. Lucas's review does not consider any underlying factors that may have altered
14 peak demand growth assumptions compared to a decade ago, it should be assigned little
15 weight by the Commission.

⁵ See, for example, *The Failure to Forecast the Great Recession*, NEW YORK FEDERAL RESERVE (Nov. 25, 2011), available at <https://libertystreeteconomics.newyorkfed.org/2011/11/the-failure-to-forecast-the-great-recession.html>.

1 Q. MR. LUCAS ALSO STATES THAT DEC'S ANNUAL SUMMER PEAK DEMAND
2 FORECAST INCREASED BY 1.7% PER YEAR IN THE EARLY 2010s BEFORE
3 SHIFTING TO AN ANNUAL INCREASE OF 1.0% IN RECENT YEARS,
4 "DESPITE CLEAR EVIDENCE OF FLAT TO DECLINING LOAD GROWTH."⁶
5 HOW DO YOU RESPOND?

6 A. DEC's summer peak forecast growth has declined every forecast since 2016 and has a
7 forecasted Compound Annual Growth Rate ("CAGR") of 0.8% in the 2020 IRP. Mr.
8 Lucas's simplistic claim of "forecast error" understates the dynamic nature of the load
9 forecast process. Changes in assumptions regarding future appliance intensities, economic
10 conditions, and demographic trends are a few of the factors that had a role in lowering the
11 DEC summer peak forecast to 0.8% compared to summer peak forecasts a decade ago. Mr.
12 Lucas's failure to consider these factors in his critique of DEC's peak demand forecasts
13 illustrates how flawed conclusions can be reached when underlying factors like changes in
14 peak load assumptions aren't explored or even considered.

15 Mr. Lucas's critique of DEC's historical summer peak growth is also questionable.
16 Mr. Lucas's calculated CAGRs for DEC's actual and weather adjusted summer peak load
17 growth between 2010 and 2020 are -0.37%, and 0.06% respectively.⁷ It was revealed via
18 data request, however, that the Lucas CAGR calculations are based on the intentionally
19 selected 8-year period from 2012 to 2020, not the 10-year period of 2010 to 2020 he cites

⁶ CCEBA Lucas Direct, at 92.

⁷ *Id.*

1 in his testimony.⁸ Using the data in the spreadsheet cited by Mr. Lucas reveals that the
2 DEC actual and weather adjusted summer peak CAGRs for the 10-year period between
3 2010 to 2020 are 1.48% and 1.39% respectively, not -0.37% and 0.06% as stated by Mr.
4 Lucas. It is unclear whether Mr. Lucas chose the 8-year period to represent the 10-year
5 period intentionally or whether this was an error. More significant than this misstatement,
6 however, is that Mr. Lucas's critique of the DEC summer peak history is without any
7 consideration of underlying factors, similar to his critique of previous load forecasts. For
8 example, his assertion of flat to negative historical peak load growth for the 2010 to 2020
9 period does not take into account changing dynamics in the wholesale load portion of
10 DEC's peak demand that resulted in contracts being added at the beginning of this period,
11 or the loss of wholesale contracts that ended in December 2019. These types of underlying
12 dynamics are instrumental in DEC's historical peak demand growth in addition to historical
13 economic, demographic, and policy dynamics, which is reflective of a summer peak with
14 uneven peak load growth rather than flat growth. The two varying weather adjusted CAGR
15 growth rates for the different historical periods (i.e., 2012-2020 versus 2010-2020) validate
16 this point, where one indicates flat growth over time (0.06%), and the other appears to
17 indicate moderate growth over time (1.39%). The two diverging CAGRs also illustrate
18 how problematic it is to rely on CAGRs alone to assess historical peak load growth rates,
19 without also considering the underlying factors in an assessment of historical peak load
20 growth. When coupled with the 2% customer growth currently experienced in the

⁸ *Id.*; CCEBA's Response to Companies' Interrogatory 1-19 (citing NCSEA DR3-12 attachment – 10-year forecast.xlsx). It should also be noted that the 2020 summer peak information provided in response to the North Carolina discovery request was preliminary as weather-adjusted summer peaks are not official until after the summer season (June through September), and that discovery response was prepared in September 2020.

1 Carolinas and the positive historical and projected employment dynamic trends the
2 Carolinas currently enjoys, it disqualifies the notion that no historical demand growth exists
3 and that the 0.8% growth rate forecasted for DEC's summer peak is unreasonable. Failing
4 to account for these and other factors when comparing load growth from two different and
5 subjective time periods or comparing what was predicted a decade or more ago can lead to
6 misleading conclusions, misstated load expectations, and a potentially compromised ability
7 to meet load.

8 **Q. YOU MENTION IN FOOTNOTE 8 ABOVE THAT THE DEC 2020 SUMMER**
9 **PEAK USED BY MR. LUCAS WAS A PRELIMINARY ESTIMATE. CAN YOU**
10 **PROVIDE MORE INFORMATION ON THIS?**

11 A. Mr. Lucas's testimony included a DEC weather adjusted 2020 peak of 17,904 MW, which
12 load forecasting prepared in response to a North Carolina Sustainable Energy Association
13 ("NCSEA") discovery request in September 2020 in the Companies' 2020 IRP proceedings
14 before the North Carolina Utilities Commission.⁹ As stated above, summer peak
15 information is not final until after the summer season (June through September). After the
16 2020 summer season, a final analysis resulted in the 2020 summer peak being finalized at
17 18,678 MW.¹⁰ That final figure was provided in November 2020 in response to a South
18 Carolina discovery request propounded by ORS staff in response to discovery request 2-
19 38 and provided to CCEBA—then, the Solar Business Alliance—in response to their
20 request to provide all discovery responses provided to other parties. Figure 2 below
21 compares 2020 actual summer peak against the forecasted 2020 summer peak (from the

⁹ NCSEA DR-3.

¹⁰ ORS DR 2-38.

2019 IRP), the preliminary 2020 summer weather adjusted estimate, and the final 2020 summer weather adjusted peak.

**Brunson Figure 2:
DEC Actual and Weather Normal Summer Peak History, 2010-2020**

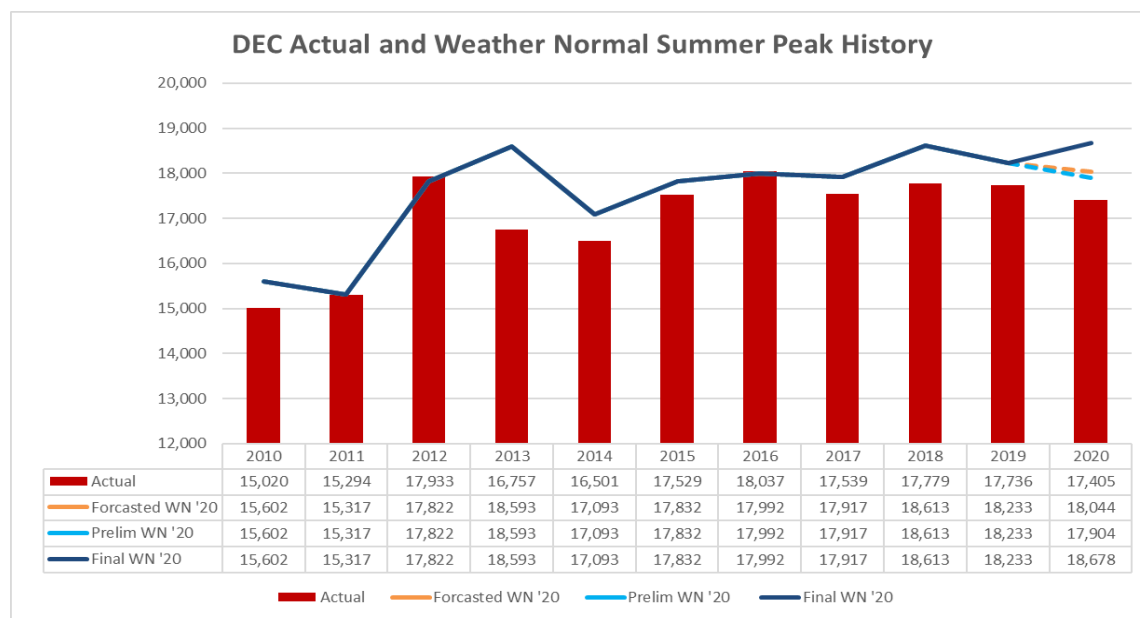


Figure 2 provides a good illustration of how economics and federal policy can impact summer peak demand. We now know that DEC's 2020 summer peak load was driven by economic and policy forces influenced by the pandemic, resulting in (1) higher than expected load growth from the residential sector, due to remote-work and remote-school mandates; (2) higher than expected industrial load, due to strong demand for durable products related to work-at-home and leisure-at-home demands, and nondurable products related to health prevention and maintenance; and (3) lower but recovering demand from the commercial sector. While demand from hotels and restaurants was down, increased demand from other retailers and wholesalers (e.g., Amazon, Wal-Mart, etc.) partially offset demand losses suffered in the leisure and entertainment sectors. Finally, note that the growth in 2020 is comparable to 2018, where federal policy (federal tax cut) led to a

1 temporary increase in incomes and energy demand. Also note year 2019, where lower
2 demand was driven partially by diminishing effects from the previous year tax cut; and
3 much lower industrial demand due to and growth global trade war between China and other
4 countries. This is another example of how understanding the underlying historical
5 dynamics of the peak load history results in the generation of reliable weather-adjusted
6 historical demand growth and load forecasts.

7 **Q. IN ORS WITNESS ANTHONY SANDONATO'S TESTIMONY HE**
8 **RECOMMENDS THAT THE COMPANIES PROVIDE IN FUTURE IRPS, A**
9 **TECHNICAL APPENDIX THAT MORE FULLY DESCRIBES EACH OF THE**
10 **MODELS, PRESENTS THE STATISTICAL RESULTS AND SHOWS THE**
11 **INDIVIDUAL ENERGY AND PEAK LOAD FORECAST RESULTS THAT WERE**
12 **ACTUALLY DEVELOPED.¹¹ HOW DO YOU RESPOND?**

13 A. As noted by Mr. Sandonato, the Companies provided this information to parties through
14 discovery in the 2020 IRP proceedings. Due to the voluminous content of the models and
15 data associated with the referenced information, the Companies do not believe it would be
16 practical or helpful to include this information as part of an appendix to the IRPs and would
17 prefer to continue providing this information to relevant stakeholders through the discovery
18 process.

19 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

20 A. Yes.

¹¹ ORS Sandonato Direct, Exhibit AMS-1 at 34 and Exhibit AMS-2 at 34.